No. 200300085

THE UNITED STATES OF AMERICA

TO ALL TO WHOM THESE PRESENTS SHALL COME:

Pioneer Hi-Bred International, Inc.

Whereas, THERE HAS BEEN PRESENTED TO THE

Secretary of Agriculture

AN APPLICATION REQUESTING A CERTIFICATE OF PROTECTION FOR AN ALLEGED DISTINCT VARIETY OF SEXUALLY REPRODUCED, OR TUBER PROPAGATED PLANT, THE NAME AND DESCRIPTION OF WHICH ARE CONTAINED IN THE APPLICATION AND EXHIBITS, A COPY OF WHICH IS HEREUNTO ANNEXED AND MADE A PART HEREOF, AND THE VARIOUS REQUIREMENTS OF LAW IN SUCH CASES MADE AND PROVIDED HAVE BEEN COMPLIED WITH, AND THE TITLE THERETO IS, FROM THE RECORDS OF THE PLANT VARIETY PROTECTION OFFICE, IN THE APPLICANT(S) INDICATED IN THE SAID COPY, AND WHEREAS, UPON DUE EXAMINATION MADE, THE SAID APPLICANT(S) IS (ARE) ADJUDGED TO BE ENTITLED TO A CERTIFICATE OF PLANT VARIETY PROTECTION UNDER THE LAW.

NOW, THEREFORE, THIS CERTIFICATE OF PLANT VARIETY PROTECTION IS TO GRANT UNTO THE SAID APPLICANT(S) AND THE SUCCESSORS, HEIRS OR ASSIGNS OF THE SAID APPLICANT(S) FOR THE TERM OF TWENTY YEARS FROM THE DATE OF THIS GRANT, SUBJECT TO THE PAYMENT OF THE REQUIRED FEES AND PERIODIC REPLENISHMENT OF VIABLE BASIC SEED OF THE VARIETY IN A PUBLIC REPOSITORY AS PROVIDED BY LAW, THE RIGHT TO EXCLUDE OTHERS FROM SELLING THE VARIETY, OR OFFERING IT FOR SALE, OR REPRODUCING IT, OR IMPORTING IT, OR EXPORTING IT, OR CONDITIONING IT FOR PROPAGATION, OR STOCKING IT FOR ANY OF THE ABOVE PURPOSE , OR USING IT IN PRODUCING A HYBRID OR DIFFERENT VARIETY THEREFROM, TO THE EXTENT PROVIDED BY THE PLANT VARIETY PROTECTION ACT. (84 STAT. 1542, AS AMENDED, 7 U.S.C. 2321 ET SEQ.)

SOYBEAN

'91M10'

In Testimony Whereof, *I have hereunto set my hand and caused the seal of the* Plant Variety Protection Office *to be affixed at the City of Washington, D.C. this eighteenth day of July, in the year two thousand three.*

Attest:

Commissioner
Plant Variety Protection Office
Agricultural Marketing Service

Secretary of Agriculture

REPRODUCE LOCALLY. *Include form number and date on all reproductions*

Form Approved - OMB No. 0581-0055

U.S. DEPARTMENT OF AGRICULTURE
AGRICULTURAL MARKETING SERVICE
SCIENCE AND TECHNOLOGY - PLANT VARIETY PROTECTION OFFICE

APPLICATION FOR PLANT VARIETY PROTECTION CERTIFICATE

(Instructions and information collection burden statement on reverse)

The following statements are made in accordance with the Privacy Act of 1974 (5 U.S.C. 552a) and the Paperwork Reduction Act (PRA) of 1995.

Application is required in order to determine if a plant variety protection certificate is to be issued (7 U.S.C. 2421). Information is held confidential until certificate is issued (7 U.S.C. 2426).

1. NAME OF OWNER: Pioneer Hi-Bred International, Inc

2. TEMPORARY DESIGNATION OR EXPERIMENTAL NAME:

3. VARIETY NAME: 91M10

4. ADDRESS *(Street and No., or R.F.D. No., City, State, and ZIP Code, and Country)*
7300 N. W. 62nd Avenue
P.O. Box 1004
Johnston, IA 50131

5. TELEPHONE *(include area code)*: 515-254-2638

6. FAX *(include area code)*: 515-253-2478

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PVPO NUMBER: 200300085

FILING DATE: 1/28/2003

7. IF THE OWNER NAMED IS NOT A "PERSON", GIVE FORM OF ORGANIZATION *(corporation, partnership, association, etc.)*: Corporate

8. IF INCORPORATED, GIVE STATE OF INCORPORATION: Iowa

9. DATE OF INCORPORATION: May 6, 1926

10. NAME AND ADDRESS OF OWNER REPRESENTATIVE(S) TO SERVE IN THIS APPLICATION. *(First person listed will receive all papers)*

Daria Schmidt, Ph. D.
7300 N.W. 62nd Avenue
P.O. Box 1004
Johnston ,IA 50131-1004

Steve Callestine, Exq
7100 N.W 62nd Avenue
P.O Box 1000
Johnston, IA 50131-1000

FEES RECEIVED

FILING AND EXAMINATION FEES: $2,705.00

DATE 1/28/2003

CERTIFICATION FEE: $ 432.00

DATE 6/18/03

11. TELEPHONE *(Include area code)*: 515-254-2638

12. FAX *(Include area code)*: 515-253-2478

13. E-MAIL: daria.schmidt@pioneer.com

14. CROP KIND *(Common Name)*: Soybean

18. CHECK APPROPRIATE BOX FOR EACH ATTACHMENT SUBMITTED (Follow instructions on reverse)

a. ☐ X Exhibit A. Origin and Breeding History of the Variety
b. ☐ X Exhibit B. Statement of Distinctness
c. ☐ X Exhibit C. Objective Description of Variety
d. ☐ X Exhibit D. Additional Description of the Variety *(Optional)*
e. ☐ X Exhibit E. Statement of the Basis of the Owner's Ownership
f. ☐ X Voucher Sample *(2,500 viable untreated seeds or, for tuber propagated varieties, verification that tissue culture will be depositied and maintained in an approved public repository)*
g. ☐ X Filing and Examination Fee *($2,705)*, made payable to "Treasurer of the United States" *(Mail to the Plant Variety Protection Office)*

19. DOES THE OWNER SPECIFY THAT SEED OF THIS VARIETY BE SOLD AS A CLASS OF CERTIFIED SEED? *See Section 83(a) of the Plant Variety Protection Act)*

☐ YES *(If "yes", answer items 20 and 21 below)* ☐ X NO *(If "no," go to item 22)*

20. DOES THE OWNER SPECIFY THAT SEED OF THIS VARIETY BE LIMITED AS TO NUMBER OF CLASSES? ☐ YES ☐ NO

IF YES, WHICH CLASSES? ☐ FOUNDATION ☐ REGISTERED ☐ CERTIFIED

21. DOES THE OWNER SPECIFY THAT THE CLASSES BE LIMITED AS TO NUMBER OF GENERATIONS? ☐ YES ☐ NO

IF YES, SPECIFY THE NUMBER 1, 2, 3, *etc.* ☐ FOUNDATION ☐ REGISTERED ☐ CERTIFIED

(If additional explanation is necessary, please use the space indicated on the reverse.)

22. HAS THE VARIETY (INCLUDING ANY HARVESTED MATERIAL) OR A HYBRID PRODUCED FROM THIS VARIETY BEEN SOLD, DISPOSED OF, TRANSFERRED, OR USED IN THE U. S. OR OTHER COUNTRIES?

☐ YES ☐ X NO

IF YES, YOU MUST PROVIDE THE DATE OF FIRST SALE, DISPOSITION, TRANSFER, OR USE FOR EACH COUNTRY AND THE CIRCUMSTANCES. *(Please use space indicated on reverse.)*

23. IS THE VARIETY OR ANY COMPONENT OF THE VARIETY PROTECTED BY INTELLECTUAL PROPERTY RIGHT *(PLANT BREEDER'S RIGHT OR PATENT)*?

☐ YES ☐ X NO

IF YES, GIVE COUNTRY, DATE OF FILING OR ISSUANCE AND ASSIGNED REFERENCE NUMBER. *(Please use space indicated on reverse.)*

24. The owners declare that a viable sample of basic seed of the variety will be furnished with application and will be replenished upon request in accordance with such regulations as may be applicable, or for a tuber propagated variety a tissue culture will be deposited in a public repository and maintained for the duration of the certificate.

The undersigned owner(s) is(are) the owner of this sexually reproduced or tuber propagated plant variety, and believe(s) that the variety is new, distinct, uniform, and stable as required in Section 42, and is entitled to protection under the provisions of Section 42 of the Plant Variety Protection Act.

Owner(s) is(are) informed that false representation herein can jeopardize protection and result in penalties.

SIGNATURE OF OWNER: Daria H. Schmidt

NAME *(Please print or type)*: Daria H. Schmidt

CAPACITY OR TITLE: Director, Technology Integration and Associative Genetics

DATE: 1/13/03

SIGNATURE OF OWNER

NAME *(Please print or type)*

CAPACITY OR TITLE

DATE

ST-470 (04-01) designed by the Plant Variety Protection Office with WordPerfect 6.0a. Replaces STD-470 (02-99) which is obsolete. *(See reverse for instructions and information collection burden statement)*

Exhibit A. Origin and Breeding History of the Variety

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Soybean Variety 91M10

Variety 91M10 evolved from a cross made in the winter 1994/1995 in Puerto Rico with the following parentage:

Parentage: XB09A/92B52

XB09A = 9161/9111

Variety 91M10 is an F5-derived line which was advanced to the F5 generation by modified single-seed descent. The F6 progeny row of 91M10 was grown in a plant row yield trial in the summer of 1997. Subsequently, 91M10 has undergone five years of extensive testing and purification and has been observed by the breeder to be uniform and stable for all plant traits from generation to generation, with no evidence of variants. On the basis of yield, and use in the yellow hila food grade market, variety 91M10 was assigned a commercial number.

The purification block was grown in Minnesota in 2000 in 64 subline rows, of which 52 were harvested and further evaluated for trait purity. Ten bushels from the best sublines were produced in Minnesota in the summer of 2001. Eleven (11) acres of parent seedstock (foundation seed equivalent) were grown in the summer of 2002.

Exhibit B. Statement of Distinctness

Soybean Variety 91M10

Variety 91M10 is most similar to variety 9091. Both varieties have purple flowers, gray pubescence, and yellow seed with yellow hila. However, 91M10 has moderately low iron deficiency chlorosis tolerance (average score = 5) whereas 9091 has moderately high iron deficiency chlorosis tolerance (average score = 8). Pairs analysis table attached below presents the support data, in which the difference is highly significant (P-value = 0.0012).

Pairs data analysis for 9091 and 91M10	Iron deficiency cholorsis tolerance, 1 is poor, 9 is excellent
9091	**8**
91M10	**5**
# Locations	14
# Replications	34
# Years	4
Difference	3
1 Standard Deviation Value	1.3
2 Standard Deviation Value	1.3
T-value	4.13
Standard Error of the Difference	0.31
Probability	**0.0012**

91M10 is also similar to variety 9111. Both varieties have purple flowers and gray pubescence. However, 91M10 has yellow seed with yellow hila whereas 9111 has yellow seed with gray hila.

Variety 91M10 is also similar to A0949 from Asgrow (Monsanto). Both varieties have gray pubescence and yellow seed with yellow hila. However, 91M10 has purple flowers and does not contain a race specific allele for resistance to *Phytophthora megasperma* whereas A0949 has white flowers and resistance to *Phytophthora megasperma* as goverened by the Rps1c gene.

EXHIBIT C (Soybean)

U.S. DEPARTMENT OF AGRICULTURE
AGRICULTURAL MARKETING SERVICE
SCIENCE AND TECHNOLOGY
PLANT VARIETY PROTECTION OFFICE
BELTSVILLE, MD 20705

OBJECTIVE DESCRIPTION OF VARIETY
SOYBEAN (*Glycine max* (L.) Merr.)

NAME OF APPLICANT(S)
Pioneer Hi-Bred, International

ADDRESS (Street and No. or R.F.D. No., City, State, and Zip Cod

7200 62nd Avenue
P.O Box 1004
Johnston, IA 50131-1004

FOR OFFICIAL USE ONLY

PVPO NUMBER
200300085

VARIETY NAME
91M10

TEMPORARY OR EXPERIMENTAL DESIGNATION

PLEASE READ ALL INSTRUCTIONS CAREFULLY: Place the appropriate number that describes the varietal character of this variety in the boxes below. Place a zero in the first box (e.g. | 9 | 9 | 9 | or | 0 | 9 |) when number is either 99 or less or 9 or less respectively. Data for quantitative plant characters should be based on a minimum of 100 plants. Comparative data should be determined from varieties entered in the same trial. Royal Horticulutral Society or any recognized color standard may be used to determine plant colors; designate system used:

Please answer all questions for your variety; lack of response may delay progress of your application.

A. MORPHOLOGY

Seed Shape

[1]

1 = Spherical (L/W, L/T, and T/W ratios < 1.2)

2 = Spherical - Flattened (L/W ratio > 1.2; L/T ratio < 1.2)

3 = Elongated (L/T ratio . 1.2; T/W ratio < 1.2)

4 = Elongate - Flattened (L/T ratio > 1.2;T/W ratio > 1.2)

Seed Coat Color:

[1]

1 = Yellow 2 = Green 3 = Brown 4 = Black 5 = Other *(Please Specify*

Seed Coat Luster:

[1]

1 = Dull 2 = Shiny

Seed Size:

[18.1] grams/100 seeds

Hilum Color:

[2]

1 = Buff 2 = Yellow 3 = Brown 4 = Gray 5 = Imperfect Black

6 = Black 7 = Other *(Please Specify)* [ ]

A. MORPHOLOGY *(Continued)*

Cotyledon Color:

[1] 1 = Yellow 2 = Green

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Seed Protein Peroxidase Activity:

[2] 1 = Low 2 = High

Hypocotyl Color:

[4] 1 = Green ('Evans' or 'Davis') 2 = Green with Bronze Bands below Cotyledons ('Woodworth' or 'Tracy') 3 = Light Purple below Cotyledons ('Beeson' or 'Pickett 71') 4 = Dark Purple extending to unifoliolate leaves ('Hodgson', 'Coker', or

Leaflet Shape:

[3] 1 = Lanceolate 2 = Oval 3 = Ovate 4 = Other *(Please Specify)*

Flower Color:

[2] 1 = White 2 = Purple 3 = White with a Purple Throat

Pod Color:

[1] 1 = Tan 2 = Brown 3 =Black

Pubescence Color:

[1] 1 = Gray 2 = Brown (Tawny) 3 =Light Tawny

Plant Habit:

[3] 1 = Determinate 2 = Semi - Determinate 3 =Indeterminate 4 =Intermdeiate

Maturity Group:

[04]

1 = 000	2 = 00	3 = 0	4 = I	5 = II
6 = III	7 = IV	8 = V	9 = VI	10 = VII
11 = VIII	12 = IX	13 = X	14 = XI	15 = XII

Maturity Subgroup:

[1] Please enter a value from 0 - 9

B. DISEASE REACTION

0 = Not Tested 1 = Susceptible 2 = Resistant 3 = Tolerant

Bacterial

[0] Bacterial Pustule (*Xanthomonas campestri* pv. *glycines* (Nakano) Dye)

[1] Bacterial Blight *Pseudomonas syringa* pv. *glycinea* (Coerper) Young, Dye, and Wilkie)

[0] Wildfire Blight *Pseudomonas syringa* pv. *tabaci* (Wolf Foster) Young, Dye, Wilkie)

B. DISEASE REACTION *(Continued)* 0 = Not Tested 1 = Susceptibl 2 = Resistant 3 = Tolerant

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Fungal

1	Brown Spot *(Septoria glycines* Hemmi)

Frogeye Leaf Spot *(Cercospora sojina* Hara)

0	race 1	0	race 2	0	race 3	0	race 4
0	race 5	0	race 6		Othe *(Please Specify)*		

0	Target Spot *(Corynespora cassiicola* (Berk. _Curt.) Wei)
0	Downey Mildew *(Peronospora trifoliorum var. manchuric* (Naum.) Syd. ex Gäum)
0	Powdery Mildew *(Microsphaera diffusa* Cke. and Pk.)
0	Brown Stem Rot *(Phialophora gregata* (Allington _Chamberlain) W. Gams.)
0	Stem Canker *(Diaporthe phaseolorum* (Cke. and Ell.) Sacc. var *caulivora* Athow and Caldwell
1	Pod and Stem Blight *(Diaporthe phaseolorum* (Cke. and Ell.) Sacc. var *sojae* (Lehman) Wehm
0	Purple Seed Stain *(Cercospora kikuchii* (T. Matsu. and Tomoyasu) Gardener)
1	Rhizoctonia Root Rot *(Rhizoctonia solani* Kühn)

Phytophthora Root Rot *(Phytophthora megasperma* Drechs. f. sp *glycinea* (Kuan Erwin))

0	race 1	0	race 8	0	race 15	0	race 22
0	race 2	0	race 9	0	race 16	0	race 23
1	race 3	0	race 10	0	race 17	0	race 24
0	race 4	0	race 11	0	race 18	1	race 25
0	race 5	0	race 12	0	race 19	0	race 26
0	race 6	0	race 13	0	race20		Other *(Please Specify)*
1	race 7	0	race 14	0	race 21		

1	Bud Blight (Tobacco Ringspot Virus)
1	Yellow Mosaic (bean Yellow Mosaic Virus)

B. DISEASE REACTIONS *(Continued)* 0 = Not Tested 1 = Susceptible 2 = Resistant 3 = Tolerant

Fungal

1	Cowpea Mosaic (Cowpea Chlorotic Virus)
1	Pod Mottle (Bean Pod Mottle Virus)
1	Seed Mottle (Soybean Mosaic Virus)

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Nematode

Soybean Cyst Nematode *(Heterodera glycines* Ichinohe)

0	race 1	0	race 4	0	race 9
0	race 2	0	race 5	0	race 14
0	race 3	0	race 6		Other *(Please Specify)*

0	Lance Nematode *(Hoploaimus columbus* Sher)
0	Southern Root Knot Nematode *(Meloidogyne incognita* (Kofoid and White) Chitwo
0	Northern Root Knot Nematode *(Meloidogyne hapla* Chitwood)
0	Peanut Root Knot Nematode *(Meloidogyne arenaria* (Neal) Chitwood)
0	Reniform Nematode *(Rotylenchus reniformu* Linwood and Olivera)
0	Javanese Nematode *(Meloidogyne javanica* (Treub) Chitwood)
	Other Nematode *(Please Specify)*

C. PHYSIOLOGICAL RESPONSES 0 = Not Tested 1 = Susceptible 2 = Resistant 3 = Tolerant

3 ~~0~~	Iron Chlorosis on Calcareous Soil
0	Phosphorus
0	Boron
0	Aluminu
0	Salt
0	Drought

BT: 4/10/03 per applicant's permission

Other *(Please Specify)*

D. INSECT REACTIONS

0 = Not Tested 1 = Susceptible 2 = Resistant 3 = Tolerant

Fungal

0	Mexican Bean Beetle *(Epilachna varivestis* Mulsant)
0	Potato Leaf Hopper *(Empoasca fabae* (Harris))
0	Other *(Please Specify)*

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E. HERBICIDE REACTIONS

0 = Not Tested 1 = Susceptible 2 = Resistant

0	Metribuzin
0	Bentazone
1	Sulfonylurea
1	Glyphosate
0	Glufosinate
0	Pendimethalin
0	Other *(Please Specify)* 0

F. TRANSGENIC COMPOSITION

Has the development of the subject variety included the insertion of genetic material from an organism other than a soybean, or, the removal of genetic material from the application variety? ☐ Yes ☑ No

If yes, please complete the following infomation requests*. Use additional pages if necessary.

1. **Please state the vector's name:**
2. **Please state the vector components:**
3. **Please describe the genetic material successfully transferred into the subject variety:**
4. **Please describe the insertion protocol:**

*** A literature citation(s) explaining the four information requests above may be an acceptable alternative to completion of the "Transgenic Composition" portion of this form. This section is fully addressed in the following publication. Specific details of the vector components and insert elements are summarized in Figure 1 and Table 1 on page 1453. Padgette, S.R. et al. Development, Identification, and Characterization of a Glyphosate-Tolerant Soybean Line. 1995. Crop Science. 35:1451-**

G. BIOCHEMICAL MARKERS

Please describe any biochemical information here, which you believe will be helpful in further describing the subject variety (e.g. Simple Sequences Repeats, Restriction Fragment Length Polymorphisms, Isozymic Characterization). Use additional pages if necessary.

H. COMMENTS

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Exhibit D. Additional Description of the Variety

Soybean Variety 91M10

In Exhibit C we have identified variety 91M10 as susceptible to bacterial blight, brown spot, pod and stem blight, rhizoctonia root rot, bud blight, yellow mosaic, cowpea mosaic, pod mottle and seed mottle.

This does not mean that variety 91M10 is any worse for these problems than other varieties of similar maturity. Rather, we do not consider 91M10 to be immune to these problems. Therefore, we have chosen to be conservative and have identified the line as "susceptible".

Variety 91M10 is an early Group 1 variety. If Group 1 varieties are divided into tenths, the relative maturity of 91M10 is 1.1.

REPRODUCE LOCALLY. Include form number and edition date on all reproductions. FORM APPROVED - OMB No. 0581-0055

U.S. DEPARTMENT OF AGRICULTURE
AGRICULTURAL MARKETING SERVICE

EXHIBIT E
STATEMENT OF THE BASIS OF OWNERSHIP

The following statements are made in accordance with the Privacy Act of 1974 *(5 U.S.C. 552a)* and the Paper Reduction Act (PRA) of 1995.

Application is required in order to determine if a plant variety protection certificate is to be issued *(7 U.S.C. 2421)*. The information is held confidential until the certificate is issued *(7 U.S.C. 2426)*.

1. NAME OF APPLICANT(S)	2. TEMPORARY DESIGNATION OR EXPERIMENTAL NUMBER	2. VARIETY NAME
Pioneer Hi-Bred International, Inc		91M10
4. ADDRESS *(Street and No., or R.F.D. No., City, State, and ZIP, and Country)*	**5. TELEPHONE** *(Include area code)*	**6. FAX** *(Include area code)*
7300 N.W. 62nd Avenue *P.O. Box 1004* *Johnston, IA 50131-1004*	*515-254-2638*	*515-253-2478*
	7. PVPO NUMBER 200300085	

8. Does the applicant own all rights to the variety? Mark an "X" in the appropriate block.
If no, please explain.

[ ] **X** YES [ ] NO

9. Is the applicant (individual or company) a U.S. National or a U.S. based company?
If no, give name of country

[ ] **X** YES [ ] NO

10. Is the applicant the original owner? [ ] **X** YES [ ] NO **If no, please answer one of the following:**

a. If the original rights to variety were owned by individual(s), is (are) the original owner(s) a U.S. National(s)?

[ ] YES [ ] NO **If no, give name of country**

b. If the original rights to variety were owned by a company(ies), is (are) the original owner(s) a U.S. based company?

[ ] YES [ ] NO **If no, give name of country**

11. Additional explanation on ownership *(If needed, use the reverse for extra space)*:

Please Note:

Plant variety protection can only be afforded to the owners (not licensees) who meet the following criteria:

1. If the rights to the variety are owned by the original breeder, that person must be a U.S. national, national of a UPOV member country, or national of a country which affords similar protection to nationals of the U.S. for the same genus and species.

2. If the rights to the variety are owned by the company which employed the original breeder(s), the company must be U.S. based, owned by nationals of a UPOV member country, or owned by nationals of a country which affords similar protection to nationals of the U.S. for the same genus and species.

3. If the applicant is an owner who is not the original owner, both the original owner and the applicant must meet one of the above criteria.

The original breeder/owner may be the individual or company who directed the final breeding. See Section 41(a)(2) ot the Plant Variety Protection Act for definitions.